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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/706,277	11/13/2003	William P. Perkins	57357-077	5649

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MCDERMOTT, WILL & EMERY
600 13th Street, N.W.
Washington, DC 20005-3096

EXAMINER	
NGUYEN, HANH N	

ART UNIT	PAPER NUMBER
2834	

DATE MAILED: 07/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/706,277	PERKINS ET AL.	
	Examiner	Art Unit	
	Nguyen N Hanh	2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6 and 9-11* is/are rejected.

7)☒ Claim(s) *7 and 8* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *13 November 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "56" has been used to designate both "mounting hole" and "retainer ring".

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference character(s) mentioned in the description: "65" in line 7, page 10; "43" in line 21, page 9. Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katagiri et al. in view of Sylverson et al. and further in view of Glauning.

Regarding claim 1, Katagiri et al. disclose an electric motor vehicle comprising: a wheel (17 in Figs. 1 and 16) containing a motor stator and a motor rotor; an integrated structure fabricated from a unitary substance, said structure having a wheel axle portion (51 in Fig. 16) and a motor stator mounting element portion (51a), the stator mounting element portion having a cylindrical configuration with its axis collinear with the axis of the axle and wherein at least one ferromagnetic segment (53) of the motor stator is joined directly to the stator mounting element (Col. 10, lines 50-65). Katagiri et al. do not show the unitary substance is a non-ferromagnetic substance and the integrated structure comprising a central passage that extends along the axis of the axle portion and the stator mounting element portion;

However, Sylverson et al. disclose a motor structure wherein non-ferromagnetic material is used for the rotor core for the purpose of improving flux efficiency (Col. 32, lines 5-20).

Moreover, Glauning discloses a motor structure a central passage that extends along the axis of the axle portion and the rotor mounting element portion for the purpose of cooling the motor.

Since Katagiri et al., Sylverson et al. and Glauning are in the same field of endeavor, the purpose disclosed by Sylverson et al. and Glauning would have been recognized in the pertinent art of Katagiri et al.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Katagiri et al. by using non-ferromagnetic material for the integrated structure and forming a central passage that extends along the axis of the axle portion and the stator mounting element portion as taught by Sylverson et al. and Glauning for the purpose of improving flux efficiency and cooling the motor.

Regarding claim 2, Katagiri et al. also disclose an electric motor vehicle wherein the diameter of the cylindrical stator mounting element portion is greater than its length in the direction of the axis and the axle portion comprises a section formed at each axial side of the stator mounting element portion (Fig. 16).

Regarding claim 3, Katagiri et al. also disclose an electric motor vehicle wherein the rotor comprises an annular ring configuration radially surrounding the stator (Figs. 16 and 19) and separated therefrom by a radial air gap, and a rotor housing (55); and the rotor housing is journalled to the axle portion via bearings (52).

Regarding claim 4, Katagiri et al. also disclose an electric motor vehicle wherein the wheel axle portion (51) extends on each axial side of the motor stator mounting element and bearings (52 and 52b) circumscribed the axle portion on both sides of the motor stator mounting element.

Regarding claim 5, Katagiri et al. also disclose an electric motor vehicle wherein a wheel assembly (17 in Fig. 1) is mounted on the rotor housing.

Regarding claim 6, Glauning also discloses an electric motor vehicle wherein the motor stator mounting element portion comprises cooling means (cooling passage

through stator as shown in Fig. 1) in communication with said central passage for cooling the stator.

4. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katagiri et al. in view of Sylverson et al. and Glauning and further in view of Shkondin.

Regarding claim 9, Katagiri et al., Sylverson et al. and Glauning show all limitations of the claimed invention except showing an electric motor vehicle further comprising at least one channel in a first of the wheel axle portion sections for providing wire access to the motor stator.

However, Shkondin discloses an electric motor vehicle further comprising at least one channel in a first of the wheel axle portion sections for providing wire access to the motor stator for the purpose of actuating the motor.

Since Katagiri et al., Sylverson et al., Glauning and Shkodin are in the same field of endeavor, the purpose disclosed by Shkodin would have been recognized in the pertinent art of Katagiri et al., Sylverson et al. and Glauning

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Katagiri et al., Sylverson et al. and Glauning by forming at least one channel in a first of the wheel axle portion sections for providing wire access to the motor stator as taught by Shkondin for the purpose of actuating the motor.

Regarding claim 10, Shkondin also discloses an electric motor vehicle wherein the diameter of the first wheel axle portion section is greater than the diameter of the other wheel axle portion section.

5. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Katagiri et al. in view of Sylverson et al., Glauning and Shkondin and further in view of Pierson.

Regarding claim 11, Katagiri et al., Sylverson et al., Glauning and Shkondin show all limitations of the claimed invention except showing an electric motor vehicle wherein the motor stator comprises a plurality of ferromagnetic core segments ferromagnetically isolated from each other.

However, Pierson discloses an electric motor vehicle wherein the motor stator comprises a plurality of ferromagnetic core segments (core segment12 in Fig. 1 and 2 is made of steel, a ferromagnetic material) ferromagnetically isolated from each other (because tube 10 is made of non-magnetic material as described in Col. 2, lines 35-40) for the purpose of improving flux efficiency.

Since Katagiri et al., Sylverson et al., Glauning, Shkodin and Pierson are in the same field of endeavor, the purpose disclosed by Pierson would have been recognized in the pertinent art of Katagiri et al., Sylverson et al., Glauning and Shkodin.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Katagiri et al., Sylverson et al., Glauning and by making stator comprises a plurality of ferromagnetic core segments ferromagnetically isolated from each other as taught by Pierson for the purpose of improving flux efficiency.

Allowable Subject Matter

6. Claims 7 and 8 are objected to as being dependent upon a rejected base claim, but would be allowable if claim 7 isrewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter: the prior art of record does not show an electric motor as described in claim 1 wherein the motor stator mounting element portion comprises cooling means in communication with said central passage for cooling the stator and said cooling means comprises: a plurality of cavities, each cavity formed along an arc at a fixed radial distance from the axis and extending in a direction parallel to the axis from a first end to a second end; and heat exchanger surfaces provided in the cavities.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh N Nguyen whose telephone number is (571) 272-2031. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner 's supervisor, Darren Schuberge, can be reached on (571) 272-2044. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

HNN

July 11, 2004

BURTON S. MULLINS
PRIMARY EXAMINER